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Be sure to read this Note

M3T-MR30/4 V.4.00 Release 01 Release Note

RENESAS SOLUTIONS CORPORATION

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Abstract

Welcome to M3T-MR30/4 V.4.00 Release 01 . This document contains supplementary descriptions to Manual. When you read certain items in the Manual, please read this document as well.

Also, this document contains a License Agreement in the last. Please read it before using. By using the software, you are accepting and agreeing to such term.

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1. Components of the Product

M3T-MR30/4 is comprises the following. If any of the above is missing, contact either Renesas Technology Corporation's office or its distributor from which you purchased the product.

1. Software (CD-R)

   The CD-R contains the software product and electronic manual necessary for program development.

2. M3T-MR30/4 V.4.00 Release 01 Release note

   This is the latest version of the M3T-MR30/4.

3. License Agreement(M3T-MR30K/4 only)

   Please read it before using. By using the software, you are accepting and agreeing to such term.

4. License ID Certificate

   A license ID is required when you install this product in your computer. The License ID Certificate certifies that you are an official user of the product. Please keep this certificate in a safe place because it will be needed when the product is upgraded in the future.

2. Versions of Crosstool compatible with M3T-MR30/4 V.4.00 Release 01

You can use M3T-MR30/4 V.4.00 Release 01 in combination either with M3T-NC30WA V.5.40 Release 00 or later version.

3. What are updated from M3T-MR30/4 V.4.00 Release 01

- The following problems are fixed.
  1. With using mailboxes of property TA_MPRI
     (See 2008/06/16 Renesas Tool News)
  2. On caliculation of stack size
     (See 2008/06/16 Renesas Tool News)
  3. With using a set_flg or iset_flg service call in combination with ichg_pri
     (See 2007/08/01 Renesas Tool News)
  4. With using objects of property TA_TPRI
     (See 2007/08/01 Renesas Tool News)
  5. With clearing an event flag for which two or more tasks waiting
     (See 2007/08/01 Renesas Tool News)
  6. With using the ter_tsk service call
     (See 2007/07/01 Renesas Tool News)
  7. On using objects that have a property of TA_TPRI
     (See 2006/10/16 Renesas Tool News)
  8. On defining the interrupt handler
     (See 2006/08/16 Renesas Tool News)
  9. On modifying the values concerning a fixed-size memory pool
     (See 2006/08/16 Renesas Tool News)

4. Installing

Before installing M3T-MR30/4 in your computer, please read the "License Agreement" and "Release Note" included with the product. You need to select the same directory in installing as installing NC30WA .

1. Starting up the installer

- Start up the installer and follow the messages displayed on the screen as you install M3T-MR30/4.
- You need to input a license ID in the middle of installation. Before you start installing M3T-MR30/4, check your license ID.
- The data you input in the middle of installation is necessary to create a file for user registration.
- The installer programs included with the product are listed below.

Supported Host	Supported OS	Product Name	Installer Name
PC	Windows 2000 Windows XP Windows Vista	M3T-MR30K/4	\MR30K\WIN\setup.exe
		M3T-MR30S/4 (w/o SOURCE)	\MR30_C1\WIN\setup.exe
		M3T-MR30S/4	\MR30_B1\WIN\setup.exe

2. Setting environment after installation

After you finished installing M3T-MR30/4, set environment variables next.

The environment variables marked by "Auto" in the tables below do not need to be set because the Windows installer automatically rewrites AUTOEXEC.BAT.

The following examples are the cases where it is installed in c:\Program Files\Renesas\Hew\Tools\ Renesas\nc30 wa\v544r00.

Environment Variable	Example of setting
BIN30	Auto(SET BIN30= c:\Program Files\Renesas\Hew\Tools\ Renesas\nc30 wa\v544r00\bin)
INC30	Auto(SET INC30= c:\Program Files\Renesas\Hew\Tools\ Renesas\nc30 wa\v544r00\inc30)
LIB30	Auto(SET LIB30= c:\Program Files\Renesas\Hew\Tools\ Renesas\nc30 wa\v544r00\lib30
Command path	Auto(c:\Program Files\Renesas\Hew\Tools\ Renesas\nc30 wa\v544r00\bin is added)

5. Entering user registration

To be eligible for upgrade information, technical support, and other services, you must be registered as a user with Renesas. Unless you are a registered user, the said services cannot be received.
Please register your name with Renesas within 30 days after purchase.

- Registering your name for the PC version

1. When you've installed MR30/4, the following file is created.

   [In case of M3T-MR30K/4]

   c:\Program Files\Renesas\Hew\Tools\Renesas\nc30 wa\v544r00\\support\mr30k\regsist.txt

   [In case of M3T-MR30S/4]

   c:\Program Files\Renesas\Hew\Tools\Renesas\nc30 wa\v544r00\support\mr30s\regsist.txt

   c:\Program Files\Renesas\Hew\Tools\Renesas\nc30 wa\v544r00\ is the directory created by default when you installed M3T-MR30/4.

2. Cut all contents of the regist.txt file and paste them into a file, then send it to the electronic mail address given below.

regist_tool@renesas.com

If you are not using an electronic mail, output the contents of the regist.txt file to a printer and send the printout to Renesas by facsimile.

* For information on our policy concerning the protection of personal information, please refer to the Renesas Technology Homepage.
URL: http://www.renesas.com/fmwk.jsp?cnt=privacy.htm&fp=/privacy/&site=i
The information we receive via the User Registration Form aids us greatly in our customer support activities. We provide Renesas Technology and related companies, distributors, etc., with essential user information (electronically or on paper) that will further help them provide customer support.
If you do not wish to have your user information provided to other related companies, please contact us to let us know. Note, however, this will limit our ability to provide complete product support.

6. Using electronic manuals

The electronic manuals of this product are offered in PDF(Portable Document Format) files. To see these electronic manuals, use a PDF file display program such as the Adobe Reader.

- Opening electronic manual file

Electronic manuals are installed in the following directory by the installer.

Directory	PDF file	Content
manual	rej10j1249_mr30_4ue.pdf	M3T-MR30/4 User's Manual in English

When you double-click on the PDF file of the electronic manual you want to see, Adobe Reader reads in the data of that manual and bring it up the display. Or after staring up Adobe Reader you can use the menus [File-Open...] to specify the electronic manual.

7. Technical Support

If what occurred in your environment doesn't replicate in our environment, we may ask a favor of you to solve the problem (there can be an instance in which we borrow your equipment). We appreciate your in-advance approval.

8. How to make M3T-MR30/4 Library

The kernel library sources and the C language I/F library sources are included in the product as follows.

Products	C Language Interface Library Source	Kernel Library Source
M3T-MR30K/4	Included(src30\c30mr)	Not included
M3T-MR30S/4 (W/O Source)	Included(src30\c30mr)	Not included
M3T-MR30S/4	Included(src30\c30mr)	Included(src30\mr30)

These libraries can be created by executing the command shown below in the directory with these source files.

make –f makefile.dos

9. Use of GUI Configurator

1. Execution of GUI Configurator

   From the Start menu, select [MR30 GUI Configurator] from the [Renesas] -> [M3T-MR30K (or S) V.4.00 Release 01] to start up the configurator.

   Also, when “Guiconfig_mr30.exe” in the “bin” directory under the M3T-MR30/4 install directory is executed, the GUI configurator starts up.

2. GUI Configurator Manual

   For the GUI configurator, the user’s manual is prepared in the Help format. From the GUI screen of GUI configurator or by selecting [MR30 GUI Configurator HELP] from [Renesas] -> [M3T-MR30K (or S) V.4.00 Release 01], the Help can be referenced.

10. Cautions

10.1. About extern declaration or prototype declaration of service call

Don't describe extern declaration nor prototype declaration if service call is issued from your program.

10.2. About the pointer on using M3T-MR30/4

M3T-MR30/4 treats all pointers as a near pointer in order to make lessen RAM size which the kernel uses.

Be careful of the argument of a service call, and the return value.

10.3. About build of the sample program

When the sample program which is included in the product is built, it is necessary to modify a startup program to call the initialization routine of a standard-input/output function. ((a) should be modified.)

```
;------------------------------------------------------------------------
; Copy edata_E(O) section from edata_EI(OI) section
;------------------------------------------------------------------------
        BCOPY   data_FEI_top,data_FE_top,data_FE
        BCOPY   data_FOI_top,data_FO_top,data_FO

        ldc     #(__Sys_Sp&0FFFFH),       sp
        ldc     #(__Sys_Sp&0FFFFH),       fb

;========================================================================
; Initialize standard I/O
;------------------------------------------------------------------------
        .glb    __init          ;(a)
        jsr.a   __init          ;(a)

;------------------------------------------------------------------------
; Set System IPL
; and
; Set Interrupt Vector
;------------------------------------------------------------------------
        mov.b   #0,R0L
        mov.b   #__SYS_IPL,R0H
        ldc     R0,FLG                  ; set system IPL
        ldc     #((__INT_VECTOR>>16)&0FFFFH),INTBH
        ldc     #(__INT_VECTOR&0FFFFH),INTBL__init
```

10.4. Procedures for Supporting the R8C/Tiny Series

10.4.1. Settings of the GUI Configurator and the Configuration Files

(1) In the definition of the system clock, set "timer" to "OTHER".

Example:

```
clock{
. . . . . .
   timer = OTHER;
. . . . . .
};
```

(2) In the definitions of the interrupt handlers, define the timer interrupts as those handled by the system-clock interrupt handler, where the name of the system-clock interrupt handler must be "__SYS_STMR_INH".

Example:

This is an example of defining the timer RA interrupt in the R8C/Tiny series as the one handled by the system-clock interrupt handler.

```
interrupt_vector[22]{
  entry_address=__SYS_STMR_INH;
  os_int=YES;
};
```

10.4.2. Modifications Made to the Startup Files (crt0mr.a30, start.a30) Modify a portion of initializing the system clock in the startup files so that the user can use the timers in the R8C/Tiny series.

Example:

This is an example of calling the initializing function of the RA timer written in C.

```
; +-----------------------------------------------------+
; |        System timer interrupt setting               |
; +-----------------------------------------------------+
;           mov.b      #stmr_mod_val,stmr_mod_reg     ;set timer mode
;           mov.b      #stmr_int_IPL,stmr_int_reg     ;set timer IPL
;           mov.w       #stmr_cnt,stmr_ctr_reg        ;set interval count
;           or.b       #stmr_bit+1,stmr_start         ;system timer start
  .glb _timer_ra_init
  JSR.W _timer_ra_init
```

For details of the initializing function of the RA timer, see Application Note of the R8C/Tiny series.

10.4.3. Modifications Made to the Section Definition Files (c_sec.inc, asm_sec.inc)

Modify the address locations of the fixed vector table to meet the R8C/Tiny series.

Example :

This is an example of locating sections in the c_sec.inc file.
In this example, modifications are made to address locations of the variable vector table according to the modifications made to those of the fixed vector table.

```
;-----------------------------------------------------------------
;      VECTOR   TABLE
;-----------------------------------------------------------------
.glb            __INT_VECTOR
.section        INTERRUPT_VECTOR          ;Interrupt vector table
.org            0fd00H
__INT_VECTOR:
.section        FIX_INTERRUPT_VECTOR    ;Fixed Interrupt vector table
.org            0ffdcH
```

10.4.4. Notices

(1) On Disabling the Watchdog Timer

If you don't use the watchdog timer, disable it using the assembly directive command ".ofsreg".

Example:

Place the following two lines at the end of the example shown in 10.4.3:

```
;WDT disable
.ofsreg 0FFH
```

(2) On the Cycle of the System Clock

The cycle of the system clock set in the configuration file (the value to which "tic_nume" has been set in the system definitions) must be the same as the cycle of interrupts generated by the initialization of the system clock by the user.

(3) On Combination with High-performance Embedded Workshop 4

- Creating Projects

In the "New Project-2/6-Select RTOS" dialog box, you must select "All Target" as "Target Type" when creating projects.

- Selecting the "-R8C" Option in the Toolchain

"-R8C" option is not selected automatically at creating projects. You need to specify it as a command option explicitly.

10.5. Note on using M16C/64, M16C/65 group MCU.

10.5.1. About automatic initialization of a timer

Since IO address of a timer differs with the conventional M16C microcomputer between M16C/64 and M16C/65 group microcomputer, automatic initialization of a timer cannot be performed at start-up. Please correct the timer initialization part of a start-up file.

Examples :

```
.IF USE_TIMER
; +-------------------------------------------------+
; | System timer interrupt setting |
; +-------------------------------------------------+
mov.b #stmr_mod_val,stmr_mod_reg ;set timer mode
-> Change into the address of the timer xx mode register which uses stmr_mod_reg.
; mov.b #1H,0AH
; bset 6,07H
mov.b #stmr_int_IPL,stmr_int_reg ;set timer IPL
-> Change into the address of the timer xx interruption control register which uses stmr_int_reg.
; bclr 6,07H
; mov.b #0,0AH
mov.w #stmr_cnt,stmr_ctr_reg ;set interval count
-> Change into the address of the timer xx register which uses stmr_ctr_reg.
or.b #stmr_bit+1,stmr_start ;system timer start
-> Change into the address of the count start flag of the timer xx which uses stmr_start.
```

10.5.2. About an automatic start of a watch dog timer

M3T-MR30/4 does not participate in operation of a watch dog timer. Therefore, stop processing and start processing of a watch dog timer need to correspond by the user program.